Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1. (Withdrawn) A device comprising:

(a) a housing shaped and dimensioned to allow the device to be hand held;

(b) a display secured to the housing for displaying moving pictures on a frame-by-frame basis;

(c) a camera arranged in the housing so as to define an optical axis extending away from the housing in a direction from which the display is viewable, thereby to image an object positioned to view the display, the camera including a detector comprising an array of light sensitive elements for obtaining respective pixels of an image frame;

(d) a sensor operable to make measurements of a physical parameter from which a rotational angle between an alignment axis of the hand-held device and a reference alignment axis in real space can be determined; and

(e) a signal processing circuit arranged to associate image frames taken by the camera with respective rotational angles determined from the sensor measurements.

2. (Withdrawn) A device according to claim 1, further comprising:

(f) an output stage arranged to output image frames taken by the camera; and

(g) a digital signal processor operatively arranged between the camera's detector and the output stage so as to apply a transform to each image frame taken by the camera prior to supply to the output stage, the transform being a rotation of the image frame through an angle derived from the rotational angle associated with that frame.

3. (Withdrawn) A device according to claim 2, further comprising:

(h) a first frame memory connected in relation to the camera's detector to store at least one image frame from the camera's detector prior to frame transformation by the digital signal processor.

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4. (Withdrawn) A device according to claim 3, further comprising:

(i) a second frame memory connected in relation to the digital signal processor and the output stage to store at least one image frame after transformation by the digital signal processor.

5. (Withdrawn) A device according to claim 2, wherein the output stage includes a wireless transmitter.

6. (Withdrawn) A device according to claim 2, wherein the output stage includes an electrical or optical communication line for output of the image frames to a data carrier to allow storage of a sequence of image frames.

7. (Withdrawn) A device according to claim 6, further comprising a drive for removably receiving a data carrier which, when loaded in the drive, is in operative communication with the electrical or optical communication line to allow storage of a sequence of image frames.

8. (Withdrawn) A device according to claim 1, further comprising:

(f) an input stage for receiving image frames together with associated rotational angles; and

(g) a digital signal processor operatively arranged between the input stage and the display so as to apply a transform to each image frame received by the input stage prior to supply to the display, the transform being a rotation of the image frame through an angle derived from the rotational angle associated with that frame.

9. (Withdrawn) A device according to claim 8, further comprising:

(h) a first frame memory connected in relation to the input stage to store at least one image frame from the input stage prior to frame transformation by the digital signal processor.

10. (Withdrawn) A device according to claim 9, further comprising:

(i) a second frame memory connected in relation to the digital signal processor and the display to store at least one image frame after transformation by the digital signal processor.

11. (Withdrawn) A device according to claim 8, wherein the input stage includes a wireless receiver.

12. (Withdrawn) A device according to any one of claims 8, further comprising a drive for removably receiving a data carrier which, when loaded in the drive, is in operative communication with the signal processing circuit to allow storage of a sequence of image frames together with associated rotational angles.

13. (Withdrawn) A device according to claim 1, further comprising:

(f) a wireless transmitter arranged to output image frames taken by the camera together with associated rotational angles; and

(g) a wireless receiver arranged to receive image frames for loading onto the display.

14. (Withdrawn) A device according to claim 13, wherein the wireless receiver is arranged so as to supply image frames to the display without rotational transformation.

15. (Withdrawn) A device according to claim 13, further comprising:

a base station for wireless communication including

a receiver for receiving sequences of image frames with associated rotational angles;

a digital signal processor arranged to apply a transform to each image frame received with an associated rotational angle, the transform being a rotation of the image frame through an angle derived from the rotational angle associated with that frame; and

a transmitter for outputting a sequence of image frames transformed by the digital signal processor.

16. (Currently Amended) An image processing apparatus, comprising:

a digital signal processor for processing a sequence of image frames collectively forming a motion picture, wherein the digital signal processor is arranged to:

determine a vertical alignment axis for each frame of the sequence from an analysis of the data content of that frame, wherein the analysis ~~comprises~~ includes the digital signal processor arranged to:

(a) ~~identifying~~ identify perpendicular lines between data objects in the frame; and

(b) evaluate intersection of the perpendicular lines to determine the vertical alignment axis in the frame;

apply a rotational transform to each frame to map the vertical alignment axis determined by the analysis onto a fixed alignment axis of the frame; and

output the sequence of image frames thus transformed to compensate for vertical misalignment of the data content of the frames.

17. (Original) An image processing apparatus according to claim 16, further comprising:

(a) a housing shaped and dimensioned to allow the device to be hand held;

(b) a camera arranged in the housing so as to define an optical axis extending away from the housing, the camera including a detector comprising an array of light sensitive elements for obtaining respective pixels of an image frame and an output of an electronic signal corresponding to plural image frames; and

(c) the digital signal processor arranged in the housing and operatively connected on the output of the camera to apply rotational transformations to frames obtained by the camera, thereby to compensate for vertical misalignment of the data content of the frames.

18. (Original) An image processing apparatus according to claim 17, further comprising:

(d) a drive for removably receiving a data carrier which, when loaded in the drive, is in operative communication with the digital signal processor to allow storage of the sequence of image frames after transformation to compensate for vertical misalignment of the data content of the frames.

19. (Original) An image processing apparatus according to claim 16, further comprising:

(d) a data carrier arranged in operative communication with the digital signal processor to allow storage of the sequence of image frames after transformation to compensate for vertical misalignment of the data content of the frames; and

(e) an output connected to the data carrier to allow sequences of image frames stored in the data carrier to be output from the device.

20. (Original) An image processing apparatus according to claim 16, further comprising:

(a) an input stage for receiving image frames;

(b) a display connected to the input stage so as to display image frames received by the input stage as a motion picture; and

(c) the digital signal processor operatively connected between the input stage and the display, thereby to output to the display a sequence of image frames transformed to compensate for vertical misalignment of the data content of the frames received at the input stage.

21. (Original) An image processing apparatus according to claim 16, further comprising:

a receiver for receiving sequences of image frames;

the digital signal processor arranged to receive sequences of image frames from the receiver; and

a transmitter for outputting a sequence of image frames transformed by the image processing apparatus to compensate for vertical misalignment of the data content of the frames received at the input stage.

22. (Currently Amended) An image processing method, comprising:

receiving a sequence of image frames taken by a camera;

determining a vertical alignment axis for each frame of the sequence from an analysis of data content of that frame, the analysis comprising:

identifying perpendicular lines between data objects in the frame; and

evaluating the intersection of the perpendicular lines to determine the vertical alignment axis in the frame;

applying a rotational transform to each frame through an angle determined from misalignment between the vertical alignment axis and a fixed alignment axis of the frame; and

outputting the sequence of image frames thus transformed to compensate for vertical misalignment of the image content of the frames.

23. (Previously Presented) A method according to claim 22, wherein the perpendicular lines are identified by using a contrast technique to isolate boundaries of the data objects.

24. (Withdrawn) A method according to claim 22, wherein the angle is determined responsive to reference data of actual camera alignment in real space obtained contemporaneously with the frame concerned.